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Stove Top Fire Suppression

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Abstract

Residential fires have decreased in Winston-Salem. However, the city is experiencing more kitchen fires caused by unattended cooking. These fires present a present danger to the victims, especially when they occur in apartments and other facilities where large numbers of people reside. The problem was the Winston-Salem Fire Department did not have a stove top kitchen fire protection system program. The purpose of the research was to develop a stove top kitchen fire protection system program for the city of Winston-Salem, North Carolina. This research has examined the data and information from national sources to support this research. The descriptive research methodology was used to answer the following questions. (a) What is the cost of a stove top kitchen fire protection system? (b) What are the target populations for the stove top fire protection system? (c) Who can fund the program? (d) Who can install the system? (e) What community organizations will be a part of the program? The procedures included interviews of Winston-Salem officials to gather opinions and feedback about the local kitchen fire issues and telephone interviews with representatives that manufacture or sell stove top extinguishing systems. A survey of departments in North and the United States was conducted to support the research by providing information and data about kitchen fires and their cause throughout the state and the nation. The results validated that kitchen fires caused by unattended was the leading cause of fires in North Carolina and in cities nationwide, provided feedback pertaining to programs or activities associated with stove top fire suppression programs in the state and throughout the nation, and enabled the department to develop recommendations that would be utilized in the development of a stove top fire suppression program in Winston-Salem. The project recommended that department apply for grants through the Housing And Urban Development Program (HUD), Federal Emergency Management agency (FEMA), and pursue

other grant opportunities including partnerships with organizations such as the City Housing Authority, Home Depot, and Lowes Home Improvement. Additional recommendations included partnering with City Housing to take advantage of current Community Development Block programs, and partner with the Housing Authority to determine who would receive the devices in the event a program was funded. Strategic recommendations including planning a strategy to develop the support necessary to develop and implement a local ordinance that would require stove top suppressing devices in residential structures, continue ongoing prevention strategies, and proceed with planning even if funding is not available so that the program is shovel-ready if funding becomes available. The project also recommended that senior citizens that live in residential high rise occupancies with low to middle income be the first recipients of the suppressors. Funding would come from grants.

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Introduction

Cooking fires continue to be the leading cause of residential fires in the United States. Many fire departments site cooking fires as the leading cause of actual fires in their perspective communities. Fires caused by grease left cooking to long, individuals focusing on other activities while leaving their cooking unguarded, and homeowners leaving home with their cooking unattended continues to present the community with risk and hazards that threaten their very lives. The City of Winston-Salem also falls in this category. This research has demonstrated the need to develop programs that will introduce alternative automatic extinguishing systems to homeowners and empower people to protect themselves since their habits will eventually lead to a fire in the kitchen.

The problem was the Winston-Salem Fire Department did not have a stove top kitchen fire protection system program. This City was sustaining an environment in the city where kitchen fires caused by unattended cooking were increasing and causing more damage and displacements to residents in the city. This environment was compounded by these fires when they occurred in multi-family occupancies including apartments and low income housing.

The purpose of the research was to develop a stove top kitchen fire protection system program for the city of Winston-Salem, North Carolina. This study examined the data and information from national sources to support this research. The descriptive research methodology was used to answer the following questions: (a) What is the cost of a stove top kitchen fire protection system? (b) What are the target populations for the stove top fire protection system? (c) Who can fund the program? (d) Who can install the system? (e) What community organizations will be a part of the program?

Background and Significance

The City of Winston-Salem is located in Forsyth County, North Carolina, in what is known as the Piedmont Triad Community. Winston-Salem is the fourth largest city in North Carolina with a population of 232,385 residents and its jurisdiction covers approximately square 132 miles (U.S. Census Bureau, 2011). Due to a community of baby boomers, young single parent households, and numerous multifamily apartments, there has been a growing concern with fires that occur in the households that fall within these groups.

Many Fires in Winston-Salem are caused by unattended cooking. When considering national statistics, fires caused by unattended cooking is still the leading cause of residential structure fires. According to the National Fire Protection Association (2010), cooking fires were involved in 156,400 residential fires. These fires attributed to 5,310 injuries, caused 993 million dollars in fire related damages, and were attributed to 410 deaths in 2010. The same report indicated that cooking caused 44% of the residential home fires, 16% of residential home fire deaths, 40% of home fire injuries, and 15% of the property damages in 2010. This report also indicates that 58% of the incidents were associated with ranges and 16% were associated with ovens (National Fire Protection Association, 2010). According to Ahrens 2011, cooking has been the leading cause of home fires and injuries. The author noted that fire departments responded to 155,400 home structure fires involving cooking equipment. The report indicates that these fires caused 390 civilian deaths, 4,800 reported civilian fire injuries, and \$771 million in direct property damage. The statistics in this source indicate that two of every five reported home fires (42%) are caused by cooking incidents. 37% of the injuries, 15% of home fire deaths, and 11% of the property damage resulting from home fires are attributed to these fires (Ahrens, 2011).

According to the National Fire Protection Association (NFPA) (2010), Frying is the leading type of activity associated with cooking fires. This report also indicates that more than half of all cooking fire injuries occurred when occupants attempt to extinguish the fires (NFPA, 2010). Cooking fires are the leading cause of fires in Winston-Salem. According to the Winston-Salem Records Management System (WSFDRMS) (2012), fires in the kitchen occur on average 17 times monthly. Eleven out of seventeen of these fires are caused by unattended cooking where an occupant has left food cooking on the stove (WSFDRMS, 2012).

The department has determined that these fires present a risk to the citizens and firefighters that protect the community. This research will provide the support information necessary to demonstrate the advantage of developing a local program that would require and at minimum insist that people install stove top fire suppression systems in residential homes to prevent and minimize the damage caused by unattended cooking.

This research is directly related to the National Fire Academy Executive Analysis of community Risk Reduction (EACRR) course. The course is also part of the Executive Fire Officer Program and is titled R274 EACRR (FEMA, 2011). The research also is directly related to the United States Fire Administration (USFA) (2012), fire prevention objectives including encouraging the inclusion of fire prevention and detection technology and practices in the design and construction of physical facilities, collecting and analyze data to project national trends and training needs, and identifying and developing public, private and fire community partnership opportunities to implement and enhance fire prevention and awareness activities (USFA, 2012).

Literature Review

This literature review focused on kitchen fires that occurred throughout the United States and explored automatic extinguishing systems that could be used to reduce or prevent cooking fires. The City of Winston-Salem is looking for those alternatives to eliminate and at minimum, reduce the damage and threat to life caused by kitchen fires.

The literature provided examples of kitchen fires with a focus on equipment involved in kitchen fires, unattended cooking activity, age of people involved in the incidents, victim's attempts to extinguish fires, and the proximity of combustibles in the cooking area. The literature also provided this writer the opportunity to examine the cost of automatic extinguishing systems and explored less expensive alternative systems that could be used by home owners. This review examined up-to-date information and data from the National Fire Protection Association (NFPA), the United States Fire Administration/National Fire data Center (USFA), the National Fire Academy library, and the North Carolina Office of the State Fire Marshall (NCOSFM). The review examined articles from fire service publications including Fire Rescue, Fire Engineering, Environment Health and Safety News America (EHS), newspaper articles, internet articles associated with kitchen fire incidents, and other professional magazines with related articles. This literature included a review of feedback from a survey of departments in North Carolina and the United States to determine if stove top reduction programs were operating in their perspective cities. Feedback obtained from interviews conducted with city officials was examined to determine local interest in the kitchen fire issues and to explore local funding availability for a stove top fire suppression program. This review enabled this writer to documents the occurrence of kitchen fires throughout the nation and demonstrates that kitchen fires are a risk to every community including Winston-Salem, North Carolina.

Cause of Home Fires

According to Wright (2010), the United States Fire Administration statistics indicate that Thanksgiving Day cooking fires more than double the number of residential cooking fires on average day. From 2006 to 2008, nearly 4,300 fires occurred in the U.S. on Thanksgiving, and they caused over \$20 million in property damage. This author also notes that automatic extinguishing systems such as sprinklers are a proven alternative; however, traditional sprinkler systems cost a lot of money. This author notes that there are alternatives (Wright, 2010).

According to the National Protection Association (NFPA) (2010), cooking fires are the number one cause of home fires. Two-thirds (66%) of fires in homes were associated with cooking materials or food igniting and leading to a structure fire. Food left unattended while cooking continues to be the leading factor in cooking fires (NFPA, 2010).

According to the American Red Cross (2011), they responded to more than 74,000 disasters last year and 93 percent of these were due to fires. Their facts indicate that cooking fires are the number cause of home fires. The Red Cross asserts that home fires start in the kitchen more than any other room in the home. Their facts indicate that unattended cooking caused close to 90% of all kitchen fires. The American Red Cross response to home fires has increased by 10% over the last six years (American Red Cross, 2011)

According to the United States Fire Administration (USFA) (2005), cooking is the leading cause of fires in structures. Their facts indicate that unattended cooking is the leading cause factor in cooking fires. Materials ignited 41% of the time are food substances including fats, oils, and grease. Starches and other food items are ignited 21% of the time, and plastics used in cooking are ignited 10% of the time. Careless cooking activities including unattended

equipment, combustibles too close to the heat source, abandoned or discarded materials and misuse of materials are contributing factors (USFA, 2005).

According to the United States Fire Administration (USFA) (2007), cooking fires continue to be the number one fire in American households. Leading cause factors are unattended cooking, combustibles too close to cooking heat sources, and frying food activities. This report also notes that many home cooking injuries occur when people try to fight the fire themselves (USFA, 2007).

According to Fire Engineering (1996), a survey conducted in cities including Baltimore, Boston, Chicago, Cincinnati, New Orleans, Portland, El Paso, Houston, Prince George County, and Monroe County indicated that unattended cooking was the leading factor in two-thirds of residential fires. The fires were caused by people ranging from 30 to 49 years of age. Unattended cooking was the leading cause in two-thirds of the fires. Additional causes include grease, food left on the range, and combustibles too close to the heat sources on the stove. This is another indicator that supports that cooking fires caused by unattended cooking is a national problem (Fire Engineering, 1996).

According to the National Association of State Fire Marshalls (NASFM), and the Association of Home Appliance Manufacturers (AHAM) (1996), a survey of ten cities indicated that unattended cooking was the prominent factor in two-thirds of cooking fires. Other contributing factors include grease fires, and food and combustible materials left on the range. Appliances involved in the fires include cooking stoves, grills, and microwave ovens. Communities involved in the survey included Baltimore, Boston, Chicago, Cincinnati, New Orleans, Portland, El Paso, Houston, Prince George County, and Monroe County (NASFM and AHAM, 1996).

According to the Office of the Illinois State Fire Marshal (OSFM) (2011), cooking fires account for 40 % of the home structure fires and unattended cooking is the leading contributing factor. Cooking is responsible for a third of home fire injuries. The state data indicates that 6 out of 10 injuries occur when occupants attempt to fight the fire. The office also recommends that people not cook when they are sleepy, have been drinking alcohol, or have taken medicine that causes drowsiness. Additional tips include keeping stove top burners and ovens clean, not wearing loose fitting clothing while cooking, and utilizing an extinguisher where appropriate. This source demonstrates that cooking fires are a problem and that preventions include good safety habits and fire suppression equipment such as an extinguisher (Illinois State OSFM, 2011).

A survey conducted with North Carolina and other departments nationwide to validate that kitchen fires caused by unattended cooking are concern and problem for the fire service. Ten departments responded. They included Cary, Charlotte, Durham, Fayetteville, Greensboro, High Point, Raleigh, Rocky Mount, and Wilmington of North Carolina. Atlanta responded to the survey also. The survey demonstrates that kitchen fires caused by unattended cooking are a problem for most of the communities surveyed based on the figures reported in the survey. Rocky Mount and Fayetteville, North Carolina have stove top suppression programs in their department. At least two cities surveyed promoted the devices in their community education message. Three out of the ten expressed an interest in prompting the devices as a prevention tool in the future. (See Appendix A)

Who is affected?

According to the United States Fire Administration (USFA) (2009), African Americans victims are affected by home fires and they represent 25 % of fire deaths that occur. This is a high figure considering that they represent less than 13 percent of the American population (USFA, 2009).

According to the United States Fire Administration (USFA) (2007), children under 5 and adults over 65 face a higher risk of death from cooking fire. People between 25 and 34 years are more likely to be injured during cooking fire. The report also indicates that youth and adults between 15 and 24 years old, adults between 35 and 44 old, and individuals 75 and older face an even higher risk of injury from cooking fires. This report also notes that men are more likely to be killed during a fire caused by cooking. Injury data indicates that men died in fires more than 50% of the time and men were injured almost 50% of the time during cooking fires. 56% percent of men and 54% of women were injured while trying to extinguish the fire (USFA, 2007).

According to Adams (2010), many cooking fires in Sandy Springs Georgia, occur in apartment buildings and impact vulnerable populations including seniors 65 and older and children between 12 and 16 who are cooking while their parents are working. This same author notes that communities must take a year-round approach in fire prevention to reduce cooking fires (Adams, 2010).

According to data obtained from the Winston-Salem Fire Department's Records Management System (WSFDRMS) (2012), most cooking fires occurred in residents 55 years and older, were caused by unattended cooking, displaced 256 people from 2008 to August of 2012, and caused 2,902,610 dollars in damages (WSFDRMS, 2012). (See Appendix C)

Equipment Involved

According Pioneering Technologies (2007), a study conducted at the United States Sasebo Navy base in Japan, identified stove top cooking is the number one cause of household fires in in North America and on United States military bases. The base has 600 family housing units with electric stoves. According to their report, the cook turns the stove on to cook and

leaves the house, thus leaving the cooking unattended. The grease and cooking materials accelerate quickly and eventually ignite combustibles near the stove. The team decided that education had to be supported by technology to reduce fires (Pioneering Technologies, 2007).

Kathleen Harmon (2009), reported that the stove top cooking is consistently the number one cause of residential fire in North America and on U.S. military bases globally. This source is useful because it notes that household fires cost Americans one billion annually and the U.S. Home Safety Council estimates that the average annual medical cost of residential fires in the US is seven billion (Harmon, 2009).

According to Finnigan (2000), appliances are often involved in many home fires. These often include cook stoves, toasters and toaster ovens, dryers, irons, and entertainment equipment. Stoves and small appliances in the kitchen are typically involved in kitchen fires. People tend to leave food on the stove cooking and become consumed in other activities that take their attention away from the cooking. These actions led to kitchen fires that often spread to the point of causing extensive damage and even loss of life. Paying attention is simple but important in prevention. The use of extinguishing equipment is helpful. However, people are often injured while they attempt to extinguish the fire (Finnigan, 2000). This source is important because it supports the NFPA data and suggests that extinguishing by suppression equipment is helpful but dangerous for occupants. This supports the need for stove top suppressing equipment which acts to extinguish the fire without occupants exposing themselves.

According to the Winston-Salem Fire Department Records Management System (WSFDRMS) (2012), the department responded to 324 structure fires in 2008, 301 structure fires in 2009, 317 structure fires in 2010, 304 structure fires in 2011, and structure 175 fires through August of 2012. There were 139 kitchen fires in 2008, 145 kitchen fires in 2009, 159 kitchen

fires in 2010, 154 kitchen fires in 2011, and 99 kitchen fires through August of 2012. There were 51 fires caused by unattended cooking in 2008, 54 fires caused by unattended cooking in 2009, 77 fires caused by unattended cooking in 2010, 55 fires caused by unattended cooking in 2011, and 44 fires caused by unattended cooking through August of 2012. 34 people were displaced in 2008, 29 people were displaced in 2009, 55 people were displaced in 2010, 53 people were displaced in 2011, and 85 have been displaced through August of 2012. These fires attributed to 456,985 dollars in damages in 2008, 441,370 dollars in damages in 2009, 656,830 dollars in damages in 2010, 519,400 dollars in damages in 2011, and 828,025 dollars in damages through August of 2012. There were 19 total civilian injuries in 2008, 9 in 2009, 9 in 2010, 11 in 2011, and 4 through August 2012. There was only 1 department injury and it occurred in 2008. There were no deaths due to unattended cooking during this period. The figures indicate that 365 of kitchen fires can be attributed to unattended cooking. Unattended cooking was 50% of the kitchen fires in 2010. The increased displacement and damage in 2012 can be attributed to an apartment fire caused by unattended cooking that displaced 40 people from their apartment units (WSFDRMS, 2012). (See Appendix C)

Examples of Cooking Fires Nationally

According to Moore (2012, January 26,), one of two fires in Cullman, Alabama was caused by unattended cooking. The fire was in a second-story apartment on January 23, 2012. All of the tenants were safely evacuated and one occupant was treated for smoke inhalation. A quick knock down stopped the spread of the fire. Fire officials noted that a quick knock down stopped the progress of the fire and reduced the number of people displaced. This is helpful for this research since it is an example of a fire caused by unattended cooking in a high risk setting

where a suppression system at the place of origin might have reduced the damage as well as the need for the displacement of the occupant (Moore, 2012, January 26).

According to Cherry (2012, February 19), a grease fire displaced a dozen families in Webster, Texas. The fire damaged 18 units in the complex, destroying nine and severely damaging three more apartments. A six year old girl alerted her parents who in turn alerted other tenants, thus saving the lives of occupants. According to the article, the Webster chief noted that cooking fires were the most prevalent of all fires. Safety tips including not leaving food unattended, not cooking late at night, and not cooking when you are sleepy can save lives and property. This is useful because this fire is an example where a grease fire caused by unattended cooking displaced several people and cause thousands of dollars in damage to residential property. A fire suppression system at the stove might have confined the blaze to the cook stove and eliminated fire spreading to the other apartments (Cherry, 2012, February 19).

According to Woolington (2011, October 12), a mobile home was destroyed when the residents left bacon cooking unattended in Tualatin Valley, Oregon. The occupant left home and returned home to find the kitchen on fire. There was no smoke alarm or sprinkler system in the home according to fire officials. Two residents had to escape through a window and suffered only minor injuries. This example is useful because mobile home fires can spread quickly. A suppression system would possible have extinguished and confined the fire to the cook stove, saving the home and removing the opportunity for injuries to the occupants (Woolington, 2011, October 12).

According to Sayre, (2010), a fire caused by unattended cooking in the kitchen killed a mother and her two sons in Mobile, Alabama. Fire officials indicated that some kind of cooking

was left unattended on the electric stove. No fire alarm equipment was found in the house. This source is useful because it demonstrates that a fire suppression device in the kitchen or on the stove might have prevented the fire and the loss of life (Sayre, 2010).

According to Beacham and Goldhammer (2012), a kitchen fire caused by unattended cooking was the leading cause of fires in homes. Sgt. Marvin Beacham and Airman 1st Class Mark Goldhammer, officers in the 35th Civil Engineer Squadron Fire Department at Misawa Air Base, Japan, note that distractions such as watching television, talking on the phone or checking your Facebook can take your attention away from cooking and lead to a fire that might be your last. The article notes that an estimated 156,400 home fires reported to U.S. fire departments involved cooking and claimed over 410 lives in 2010. Food or other cooking materials is ignited 60% of the time in these kitchen fires. Cooking with oil and frying are often key factors in a cooking fire. The authors also note that fires often occur on Thanksgiving and that cooking appliances are typically involved. This source is important because these officers cite the NFPA fire figures as a basis for safe cooking prevention on the military base for soldiers and their families (Beacham and Goldhammer, 2012)

According to consumer report, home owners should beware of microwave ovens. Fires and other hazardous incidents have occurred with microwaves even when they were not in use due to arcing issues. A fire in a home in Oakland Township, Michigan was attributed to an over the stove microwave oven that possibly ignited by itself. A fire in a microwave oven in Lumberton, Texas, was attributed to electrical arcing. Even though the fire was contained to the unit, it raises the question of the safety of modern day technology in appliances. The authors noted that the Consumer Product Safety Commission indicated that major appliances caused more than 150,000 residential fires each year, resulting in 3,670 injuries, 150 deaths, and \$547

million dollars in property damage based on estimates from 2006 through 2008. The article also noted that fires are often caused by human factors including unattended cooking, natural events such as storms, and design problems. This is important to this research since it offers a cause of fires that can't be controlled or countered by residential homeowners unless they unplug the units (Consumer report, 2012).

Funding for extinguishing systems

According to the United States Fire Administration/Federal Emergency Management Agency (FEMA) (2011), commercial buildings have utilized sprinklers for the last 100 years. Sprinklers have been recently developed that provide protection for residential property. These systems cost about \$1.50 per square foot in a new home and approximately \$2.50 to \$5.00 to retrofit an existing home with adequate and available water. A 1000 square home would cost the owner or contractor approximately \$1,560 for an installation in new construction (FEMA, 2011).

According to a report prepared by Newport Partners (2010) for the Fire Protection Research Foundation, there are not many incentives that effectively promote fire suppression systems in residential homes. Those incentives that are available are vary from developer to builders and homeowners. They often target single groups such as home builders. Based on this report, incentives basically target and benefit individuals or organizations that will make money on the housing such as builders and sellers of homes. Even though, a new owner or occupant would benefit, there has been no factor that has prompted institutions or developers to incorporate suppression systems in new home construction (Newport Partners, 2010)

Newport Partners (2008), also reported that communities throughout the United States had adopted Residential fire sprinkler ordinances for single-family residents. Even though the systems make homes safer, the cost of installation continues to be a concern and barrier to many

communities adopting similar ordinances. System costs ranged from \$2,386 to \$16,061 for the 30 home plans surveyed their study. The cost per square feet ranged from \$0.38 to \$3.66 and the average cost was \$1.61 per square feet in the 30 home plans surveyed (Newport Partners, 2010). These sources are important for this research since they demonstrate the cost of conventional residential sprinklers in homes.

According to feedback received during an August 31, 2012 telephone interview with Deputy City Manager Derwick Page (2012), City Management is always interested in programs that provide a direct benefit to our citizens and they would support any initiatives that would improve citizen's lives. Paige also noted there was no allocations in the general fund sited the Community Block Grant as a potential funding source since this project involved improvement to homes. The discussion also concluded that matching could be considered and would have to be approved by the Budget Office, the City Manager, and City Council depending on the amount of matching needed (Paige, 2012, August 31). (See Appendix B)

According to feedback received during an August 31, 2012 telephone interview with City Housing Director Ritchie Brooks, (2012), there were several communities in the city that could partner with the City departments if a program was funded. These included Kpasa, the American Red Cross, Local college fraternities and sororities, churches, Human Resources, and the City Housing Department. He also suggested that that stove top fire suppressing systems would be a great device to incorporate in homes that were renovated under the Community Block Grant Program. The devices could become a part of the list of items installed and the process would even include a follow up to make sure the devices are updated properly. He was very supportive of supporting developing an ordinance for the devices and arranged to assign a person to work with the fire department to start working on the process. Brooks recalled a fire that occurred a

few years ago where an elderly resident in one of the newly remodel under the CBDG program was killed by a cooking fire when her clothes caught on fire. He noted that this type of device probably would have saved her life (Brooks, 2012, August 31). (See Appendix B)

According to Johnson (2011), the Builders Association of Minnesota (BAM) pushed legislation to counter a bill that would require residential sprinklers in the building in 2012. Proponents simply say that the code should be based on voluntary sprinkler requirements versus mandatory requirements. Even though codes do not keep home owners for obtaining sprinklers, it does not require them to be installed in residential construction in this state and many other states. The article suggests that builders, insurance organizations and fire officials should work together to encourage voluntary fire sprinkler installation. This source is helpful because it demonstrates that political struggles between strong groups create an environment where suppression systems of any kind are likely not to be required in most jurisdictions (Johnson, 2011).

Alternative devices

According to Boston (2011), tuna size canisters known as automatic stovetop fire suppressors can prevent or at minimum, reduce the damage caused by unattended cooking on the stove. The device is magnetically attached to the hood and activates to release sodium bicarbonate powder to extinguish a stove top fire. She notes that the Happy Home Communities in Atlanta, Georgia, had 1,100 apartments with the devices installed and that the devices have always extinguish stovetop fires, leaving minimum smoke damage. She also notes that Abbey Residential in Birmingham, Alabama, had fire suppressors in 8,000 units. The owner notes that the stovetop devices do a much better job of preventing damage because they are present and operate when occupants are not there to use fire extinguishers to put out a fire on the stove. The

owners of these complexes are confident that these devices reduce claims and provide a lot of protection for a very small investment, usually less than \$50. The devices last for five-year can be purchased at maintenance supply stores or through the manufacturer's website. This is important because these are examples of stovetop suppressing devices being installed in multi-family residential housing as a low cost extinguishing system (Boston, 2011).

According to Langston (2011), Housing Urban and Development (HUD) projects in Philadelphia have installed stovetop fire suppressors in the kitchens of their apartments. They note that cooking is the cause of 68% of fires in multi-family residential fires and this is a great prevention for their housing projects. Advantages include a device cost under 50 dollars, an automatic release of the fire suppressing powder on the fire and an easy cleaned-up with a vacuum and wet cloth. This is important because it is another example of stovetop suppressing devices being installed in multi-family residential housing as an extinguishing system (Langston, 2011).

According to a presentation on the North Carolina Department of Insurance (NCDI) (2012), stove top suppressors are inexpensive and provide excellent fire stop capability for unattended cooking fires. The devices come in different packages. The devices automatically dispense fire-suppressing powder onto a fire, installs easy, and clean up easy. The devices have a non-toxic powder, alerts occupants immediately, typically activates before sprinklers, are affordable and cost-effective (about \$50 per stove), work for any traditional four-burner cooktop, and leave no water damage. The presentation notes that fire departments have used grant funds to purchase stove top fire suppressors for their communities. The communities include Newnan, Georgia Fire Department, High Point, North Carolina Fire Department, Columbia, Tennessee Fire Department, St. Paul, Minnesota Fire Department, Arvada, Colorado Fire Department,

White Bear Lake, Minnesota Fire Department, Sandy Springs, Georgia. Fire Department, Orange County, Florida Fire Rescue, Dothan, Alabama Fire Department, Bristol, Virginia Fire Department, and Overland Park, Kansas Fire Department. Cities that have adopted stovetop suppressor ordinances include Shreveport, Louisiana, Carrboro, North Carolina, Westwego, Louisiana, and North Richland Hills, Texas (NCDOI, 2012).

According to Handgraaf (2011), firefighters along with Lowe's Home Improvement installed stovetop fire suppressors in 24 apartments for residents at the Harambee Square Apartments in Rocky Mount, North Carolina. Fire officials express that the 50 dollar device was worth the investment since the leading cause of residential house fires was cooking due to unattended cooking. When people realize there is a fire, it is usually too late to extinguish the fire with a household fire extinguisher. The department was excited that people were installing them in their homes on their own. The department has responded to fires where the devices had extinguished the fire before fire units arrived at the home (Handgraaf, 2011, December 16).

According to Gessner (2011), Burnsville's firefighters have responded to more than 200 multi-unit housing fires since 2004. Nearly 80 percent were caused by cooking, smoking, and candles. The department was awarded a grant from the Federal Emergency Management Agency. They used the \$47,000 and another \$11,700 in city funds to launch its "Keep the Burn Out of Burnsville" campaign. The department purchased 1,000 stovetop fire suppressors for installation in older apartment buildings, purchase thousands of cigarette-extinguishing smoking buckets and produce and distribute a fire education DVD. The video was produced in English, Russian, Somali, and Spanish (Gessner, 2011).

According to Dykes (2011), fires caused by unattended cooking presented a problem to the Monroe Housing Authority properties in Monroe, Georgia, from 2005 to 2010. The author's

recommendations included purchasing stovetop suppressor for the Monroe Housing Authority properties. This is useful since it illustrates that multi-family complexes were targeted for the installation of stove top suppressors to stop or limit fire damage (Dykes, 2011).

According to James (2012), the town of South Brunswick, received a 67,000 dollar grant from the U.S. Housing and Urban Development Department. A total of \$7,900 was used to purchase stove top fire suppressors for seniors with low incomes and adults with disabilities in the Oak Woods and Charleston Place senior residences. This supports the research because it illustrates another example of residents in multi-family housing that would benefit from the installation of stove top fire suppressors (James, 2012).

According to Wright (2010), there are other affordable automatic fire-suppression systems that can benefit residential homes. Denlar Fire Protection has developed 30" or 36" range hoods that incorporate a triple protection system that includes a high-capacity exhaust fan, dual halogen lamps, and a nozzle discharge system. Systems like SMARTX and StoveTop FireStop are stovetop fire-suppression systems that work automatically, suppress fires completely, and warn occupants immediately with an audible alarm. Similarities in the systems include automatic activation, set off by fire and not heat, and they disperse a powder or liquid that is not harmful to equipment or people. The units work with most hoods systems and are easy to install for the professional or the do-it-yourself owner. They are Underwriters Laboratories (UL) and OSHA approved, and reduced the amount fire claims. These automatic units can be purchased and installed for as low as 60 dollars (Wright, 2010).

According to feedback received during an August 31, 2012 telephone interview with Ray Harris (2012), StoveTop FireStop canister type hood systems had been successful in extinguishing stove top fires and he was not aware of any instances where the units had not put

out a fire on the stove. The units are easy to install since they are magnetic and are simply placed under the hood above the stove burners, are inexpensive, costing around 50 dollars for a single stove, are effective since the occupant does not have to operate the system, are easy to clean up, and leave no water damage (Harris, 2012, August 31). (See Appendix D)

According to feedback received during an August 31, 2012 telephone interview with Conrad Mekulec (2012), SmartX hood systems have always extinguished cooking fires and the liquid can be cleaned up with a rag or even a handkerchief after activation. The units are simple to install and can even come in a self-contained hood unit that can be serviced and used again after an activation. The units have been in existence 30 years and completely eliminate fires and extensive damages caused by stove top fires. Insurance claims would be reduced significantly and the military have used the technology for several years to prevent damages in homes on base property (Mekulec, 2012, August 31). (See Appendix D)

According to applied research conducted by Bonner (2007) Stove top suppression devices should be part of the prevention measures included in fire reduction strategies. His research recommended that departments promote programs that retrofit kitchens with devices that are designed to reduce kitchen fires. His research recommendations included Stovetop Firestop, SafeTelement, and Smart Stove devices as engineering controls that should be utilized in reducing the damage caused by kitchen fires (Bonner, 2007, p 31).

Procedures

The procedures began with interviews of personnel in the Winston-Salem Fire Prevention and Records Division. Documented interviews with Norman Mitchell, Deputy Fire Marshall, were conducted to gain their perspective of the kitchen fires in Winston-Salem and related prevention strategies. Data retrieved from the Winston-Salem Fire Records Management System

was retrieved and used to support this research. Scott Tesh from the Budget Office was interviewed via phone to determine the City's position and capability of funding a stove top fire suppressor initiative. Phone interviews were conducted with the Derwick Page, Deputy City manager and Ritchey Brooks, Housing Services Director to determine the City's position on funding suppression systems in target housing environments in the City of Winston-Salem. The interviews were conducted throughout the 2011/12 fiscal year. (The Questions and results are in Appendix B)

Documented telephone interviews were conducted with vendors that sell Stove top fire Suppressing equipment to determine installation, warranty, and maintenance needs and requirements. They included interviews with Ray Harris of StoveTop FireStop and Conrad Mekulec of SmartX. (The Questions and results are in Appendix D)

An on-line survey was sent to departments throughout the state and country in January of 2012 and collected through August of 2012. The survey gathered feedback pertaining to fires caused by unattended cooking and any future plans to initiate a stove top fire suppression program in their perspective cities. The survey was sent to 10 fire departments in North Carolina and 10 departments throughout the United States. Nine North Carolina departments responded and one department outside of North Carolina responded to the survey. (The survey and responses are in Appendix A)

The procedures also included collecting articles with information and statistics from the National Fire Protection Association (NFPA), Occupational Safety and Health Administration (OSHA), North Carolina Office of the State Fire Marshal (NCOSFM) in conjunction with the

North Carolina Fire and Rescue Commission, the United States Fire Administration's National Fire Data Center and the Illinois State Office of the State Fire Marshal (ISOSFM).

Articles from fire magazines were collected at the National Fire Academy in Emmitsburg, Maryland. Articles from the internet, newspapers, and trade magazines were utilized as sources for this research. The sources provided important feedback and information pertaining to grants, examples of fires caused by cooking and related factors, stove top suppression products, and examples of cities that had stove top fire suppression ordinances and programs in their cities.

The procedures included and ongoing review of department data from the records management system to obtain support statistics pertaining to fires caused by cooking.

Assumptions and Limitations

This writer assumed that the survey would have a high response rate from in-state and out-of-state respondents to support the research. The writer also assumed that it would be easy to gather feedback by contacting departments through telephone. It was the writer's belief that agencies would be supportive of fellow firefighters working on EFO projects. It was also assumed that the most knowledgeable members would complete the survey. It was also assumed that the return of research information would be more effective if a department member was assigned the task of delivering, collecting, and tabulating the results of the survey.

Even though the in-state departments responded well, the lack of the ability or a mechanism to encourage departments to respond to the survey or telephone calls reduced the amount of feedback for the survey instrument for the out-of-state respondents. The inclusion of the out-of-state departments may have added more validating power to the results.

Results

There were five (5) questions developed to address the problem and purpose of this research. The information presented by the literature, and collected by the procedures provided the information and data necessary to answer the questions developed for this project.

Since the cost of installing a suppression system is a concern for management and elected officials, the research posed the question of the cost of automatic extinguishing systems (AES).

a. What is the cost of a stove top kitchen fire protection system? The research demonstrated that fire suppression systems such as sprinkler systems were expensive, costing \$1.50 per square foot in a new home and approximately \$2.50 to \$5.00 to retrofit an existing home with adequate and available water (FEMA, 2011). Newport Partners, (2008), reported that sprinkler in residential homes could cost \$2,386 to \$16,061 in a 30 home plan study they conducted. The cost per square feet ranged from \$0.38 to \$3.66 and the average cost of installation was \$1.61 per square feet in the 30 home plans surveyed (Newport Partners, 2010). Newman Partners, (2010), also demonstrated that there were not adequate or effective incentives that encourage contractors and developers to install sprinkler systems in residential occupancies (Newman Partners, 2010).

The research did demonstrate however, that an alternative to traditional residential sprinkler systems. According to (NCDOI), (2012), hood-type stove top suppressing systems were inexpensive, costing 50 dollars for a single hood installation and costing approximately 35 dollars to purchase an individual unit. According to a presentation on the North Carolina Department of Insurance (NCDOI) website, (2012), hood-type suppressors were affordable and cost-effective (about 50 dollars per stove), work for any traditional four-burner cooktop, and leave no water damage. According to Langston, (2011), HUD projects in Philadelphia have installed stovetop fire suppressors in the kitchens of their apartments and noted that they cost less

than 50 dollars per installation. Vendors that sell the devices listed prices that start at 35 dollars per unit. According to Wright, (2010), automatic stove top fire-suppression systems were affordable and benefit residential homes by adding more safety for a small price. Systems like SMARTX and StoveTop FireStop devices are stove top fire-suppression systems that work automatically, suppress fires completely, and warn occupants immediately with an audible alarm. These systems can be purchased and installed for 60 dollars (Wright, 2010).

The department needed to know where to install the units first since funding was limited.

b. What are the target populations for the stove top fire protection system? The research demonstrated that senior citizens living multi-family with low incomes and 55 years or older would be the target populations in a first time program in Winston-Salem. This would include installations in Housing Authority properties such as Crystal, Healy, and Sunrise Towers. The literature demonstrated that people under 5 years of age to people over 75 years of age are at risk due to cooking fires. Men and women are often injured while trying to put these fires out before emergency responders arrive. According to the United States Fire Administration (USFA) (2009), African Americans victims are affected by home fires and they represent 25 % of fire deaths that occur (USFA, 2009). According to the United States Fire Administration (USFA) (2007), children under 5 and adults over 65 face a higher risk of death from cooking fire. The report also indicates that youth and adults between 15 and 24 years old, adults between 35 and 44 old, and individuals 75 and older face an even higher risk of injury from cooking fires. Injury data indicates that men died in fires more than 50% of the time and men were injured almost 50% of the time during cooking fires. 56% percent of men and 54% of women were injured while trying to extinguish the fire (USFA, 2007). According to Adams (2010), vulnerable ages included seniors over 65 and children between 12 and 16 (Adams, 2010). According to James,

(2012), the town of South Brunswick purchased stove top fire suppressors for seniors with low income and adults with disabilities (James, 2012). Finally, most cooking fires occurred in residents that were 55 years and older according to the Winston-Salem Fire Department's Records Management System (WSFDRMS, 2012).

Funding a program was critical element that had to be resolved if any suppressing systems were to be installed. c. Who can fund the program? Cities seldom fund initiatives to install suppressing equipment. The research indicated that cities that had programs often funded the suppressors through grants. According to James (2012), the town of South Brunswick, received a 67,000 dollar grant from the U.S. Housing and Urban Development Department and used 7,900 dollars to purchase stove top fire suppressors for seniors (James, 2012). According to Gessner (2011), the Burnsville's Fire Department was awarded a \$47,000 grant from the Federal Emergency Management Agency (FEMA). They use the grant and \$11,700 in city funds to purchase 1,000 stovetop fire suppressors for installation in older apartment buildings (Gessner, 2011).

Once the suppressors were purchased, they had to be installed. d. Who can install the system? The canisters type systems are typically magnetic and can be installed by lay people with minimum skills including custodians, professional installers, and even do-it-yourself home owners. According to feedback received during a telephone interview with Ray Harris (2012, August 31), the StoveTop FireStop systems could be installed by professionals or even do-it-yourself homeowners. The units are magnetic canisters and simply are attached to the hood unit above the burners above the stove (Harris, 2012, August 31). According to information during an interview with Norman Mitchell (Deputy Fire Marshall Winston-Salem) (2012), he had experience with the systems and expressed they are simply placed above the stove top by attaching them to the hood (Mitchell, 2012, August 30). According

information received during a telephone interview with Conrad Mikulec (2012, August 31), the SmartX units can be installed by custodians, professionals, and even some homeowners (Mikulec, 2012, August 31). According to these vendors and manufacturer representatives, most units can be installed by most homeowners. The Winston-Salem Fire Department would be able to partner with apartment owners and assist citizens with the installation of the devices.

The department would hope to partner with community organizations if a program was initiated. e. What community organizations will be a part of the program? During an interview and interview with Ritchey Brooks, City Housing Director (2012, August 31), there were several communities in the city that could partner with the City departments if a program was funded. These included Kpasa, the American Red Cross, Local college fraternities and sororities, churches, Human Resources, and the City Housing Department (Brooks, 2012, August 31).

Discussion

This research project was done to determine how to develop a stove top fire suppression program in Winston-Salem, North Carolina. The research has validated that kitchen fires are the number one fire in most cities throughout the nation. The leading cause factor of the kitchen fires is unattended cooking. It is also important to note that the age range for victims and people involved in kitchen fires is 5 years old to 75 years old based on the information reviewed in the literature. Men and women are often injured when they attempt to extinguish fires and men are injured more often than women. These fires are dangerous and are put more people at risk when they occur in multi-family housing (NFPA, 2010). Fires caused by unattended cooking occur when people leave the area where the food is cooking or when individuals are focused or have involved themselves with other activities while they are cooking.

Sprinkler systems are certainly desired by the fire service, but are expensive and often contractors have few incentives that encourage them to install them in new construction. Contractors and construction/building organizations also resist and push back against any legislation that would require sprinkler installation in construction. An alternative and inexpensive alternative is stove top fire suppressing type devices. They can be installed by professionals and even by home owners. They are automatic and operate to extinguish fires without a person having to operate the system. They are easy to replace and clean up after activation is easy since the powder or fluid is environmentally friendly and there is no water damage. Some units can be installed for less than 60 dollars (Wright, 2010)

This research demonstrates that Winston-Salem's number one fire is cooking where unattended cooking is the number one cause factor. Even though not has been killed in Winston-Salem, the frequency of this type of fire increases the odds of the department encountering casualties and even a fatality in the future. This has prompted the department to seek out a prevention option in addition to ongoing strategies that would help citizens defend themselves since the habit of leaving cooking unattended or focusing on other activities puts them at risk. This option is stovetop fire suppressors. The technology is proven, expensive, and causes very little damage when they are activated. The literature review has provided feedback that enabled this writer to provide significant support to the recommendation of developing and implementing a stove top fire suppressor program and starting with senior citizens in multi-family housing in the Housing Authority properties.

Recommendations

The following recommendation should assist the Winston-Salem fire Department in defining who will receive the suppressors, who will fund them, and how they will be installed. The

recommendations will also be beneficial in providing a program to monitor the impact of the devices and a maintenance program.

1. The department should apply for grants through the Housing And Urban Development Program (HUD), Federal Emergency Management agency (FEMA), current Community Block Development Grant (CBDG), and any other grant opportunities including partnerships with organizations such as City Housing, Home Depot and Lowes Home Improvement.
2. The department should work with local city and the Housing Authority to determine who would receive the devices in the event a program was funded.
3. The department should began planning a strategy to develop the support necessary to develop and implement a local ordinance that would require stove top suppressing devices in residential structures.
4. The department should continue to emphasis the importance of ongoing prevention strategies including smoke detector programs, Citizens Fire Academy, and community education programs.
5. The department should proceed with planning even if funding is not available so that the program is shovel-ready if funding is available.

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Appendix A

Winston-Salem Fire Department Unattended Cooking Fire Survey (on-line)

1. What is your name and title?
2. What is the name of your department? _____
3. What is the population of your town or city? _____
4. How many fires did your department respond to in 2011? _____
5. How many fires were kitchen fires? _____
6. How many were caused by unattended cooking? _____
7. How many fatalities were due to Kitchen fires in 2011?
Civilian _____ Fire Department Employees _____
8. How Many Injuries were due to Kitchen fires in 2011?
Civilian _____ Fire Department Employees _____
9. What income groups do you most often see kitchens fire occurrences?
A) 0 to \$22,000 B) \$22,000 to \$30,000 C) \$30,000 to \$50,000 D) \$50,000 to \$75,000
E) 75,000 to 100,000 F) Over \$100,000 G) Don't Know _____
10. Does your department have a "stove top" kitchen fire protection system program?
Yes _____ No _____ Don't Know _____
11. Do residents in your community utilize a stove top suppression unit that that attaches magnetically under the vent hood over a stovetop?
12. Does your department feel that the units have reduced the number of kitchen fires?
Yes _____ No _____ Don't Know _____

13. Does your department feel that the units have reduced the amount of potential damage due to the unit suppressing fires?

Yes _____ No _____ Don't Know _____

14. Does your department install the units?

Yes _____ No _____ Don't Know _____

15. Are the units installed in new construction?

Yes _____ No _____ Don't Know _____

16. If your community does not use stove top fire suppression systems, does your department plan to introduce them to the community in the future? Yes _____ NO _____ Don't

Know _____

Yes_____ No _____ Don't Know _____X_____

30. Does your department install the units?

Yes _____ No _____X_____ Don't Know _____

31. Are the units installed in new construction?

Yes _____ No _____X_____ Don't Know _____

32. If your community does not use stove top fire suppression systems, does your department

plan to introduce them to the community in the future? Yes _____ NO_____ Don't

Know _____X_____

Winston-Salem Fire Department Unattended Cooking Fire Survey

1. What is your name and title? Gregory A. Favors, Chief of Fire Prevention
2. What is the name of your department? Atlanta Fire and Rescue Department
3. What is the population of your town or city? 422,338
4. How many fires did your department respond to in 2011? 2,149
5. How many fires were kitchen fires? 313
6. How many were caused by unattended cooking? 19
7. How many fatalities were due to Kitchen fires in 2011?
 Civilian 0 Fire Department Employees 0
8. How Many Injuries were due to Kitchen fires in 2011?
 Civilian 0 Fire Department Employees 0
9. What income groups do you most often see kitchens fire occurrences?
 A) 0 to \$22,000 B) \$22,000 to \$30,000 C) \$30,000 to \$50,000 D) \$50,000 to \$75,000
 E) 75,000 to 100,000 F) Over \$100,000 G) Don't Know X
10. Does your department have a "stove top" kitchen fire protection system program?
 Yes _____ No X Don't Know _____
11. Do residents in your community utilize a stove top suppression unit that that attaches magnetically under the vent hood over a stovetop?
12. Does your department feel that the units have reduced the number of kitchen fires?
 Yes _____ No _____ Don't Know X
13. Does your department feel that the units have reduced the amount of potential damage due to the unit suppressing fires?

Yes_____ No _____ Don't Know _____X_____

14. Does your department install the units?

Yes _____ No _____ Don't Know _____X_____

15. Are the units installed in new construction?

Yes _____ No _____ Don't Know _____X_____

16. If your community does not use stove top fire suppression systems, does your department

plan to introduce them to the community in the future? Yes _____ NO_____ Don't

Know _____X_____

Winston-Salem Fire Department Unattended Cooking Fire Survey

1. What is your name and title? Paul Wilkinson, Chief Fire Investigator
2. What is the name of your department? Charlotte Fire Department
3. What is the population of your town or city? 731,424
4. How many fires did your department respond to in 2011? 2,391
5. How many fires were kitchen fires? 361
6. How many were caused by unattended cooking? 107
7. How many fatalities were due to Kitchen fires in 2011?
 Civilian 2 Fire Department Employees 0
8. How Many Injuries were due to Kitchen fires in 2011?
 Civilian 0 Fire Department Employees 0
9. What income groups do you most often see kitchens fire occurrences?
 A) 0 to \$22,000 B) \$22,000 to \$30,000 C) \$30,000 to \$50,000 D) \$50,000 to \$75,000
 E) 75,000 to 100,000 F) Over \$100,000 G) Don't Know X
10. Does your department have a "stove top" kitchen fire protection system program?
 Yes _____ No X Don't Know _____
11. Do residents in your community utilize a stove top suppression unit that that attaches magnetically under the vent hood over a stovetop?
(Several of our apartment complexes have installed them on their own through self-instituted Programs. Unknown if individual homeowners have installed these types of devices)
12. Does your department feel that the units have reduced the number of kitchen fires?
 Yes _____ No _____ Don't Know X

(We have had several incidents where we have found a similar type of device. One was effective in holding the fire damage to minimal spread and in the other incident, the device did not appear to operate properly.)

13. Does your department feel that the units have reduced the amount of potential damage due to the unit suppressing fires?

Yes ☒ No ☐ Don't Know ☐

14. Does your department install the units?

Yes ☐ No ☒ Don't Know ☐

15. Are the units installed in new construction?

Yes ☐ No ☒ Don't Know ☐

16. If your community does not use stove top fire suppression systems, does your department

plan to introduce them to the community in the future? Yes ☐ NO ☒

Don't Know ☐

(We have distributed information on similar types of devices to apartment complexes and other community housing associations. To implement a free give away and install program like this in our City would most likely not occur due to cost and logistics issues.)

Winston-Salem Fire Department Unattended Cooking Fire Survey

1. What is your name and title? Mark Hinton, Battalion Chief
2. What is the name of your department? Cary Fire Department
3. What is the population of your town or city? 141,271
4. How many fires did your department respond to in 2011? 218 Total
55 Involved Structures
5. How many fires were kitchen fires? 16 or 7.37 Total
6. How many were caused by unattended cooking? 6
7. How many fatalities were due to Kitchen fires in 2011?
Civilian 0 Fire Department Employees 0
8. How Many Injuries were due to Kitchen fires in 2011?
Civilian 10 Fire Department Employees 3
9. What income groups do you most often see kitchens fire occurrences?
A) 0 to \$22,000 B) \$22,000 to \$30,000 C) \$30,000 to \$50,000 D) \$50,000 to \$75,000
E) 75,000 to 100,000 F) Over \$100,000 G) Don't Know X
10. Does your department have a "stove top" kitchen fire protection system program?
Yes No X Don't Know
11. Do residents in your community utilize a stove top suppression unit that that attaches magnetically under the vent hood over a stovetop?
12. Does your department feel that the units have reduced the number of kitchen fires?
Yes No Don't Know X
13. Does your department feel that the units have reduced the amount of potential damage due to the unit suppressing fires?

Yes_____ No _____ Don't Know _____X_____

14. Does your department install the units?

Yes _____ No ____X_____ Don't Know _____

15. Are the units installed in new construction?

Yes _____ No ____ Don't Know ____X_____

16. If your community does not use stove top fire suppression systems, does your department

plan to introduce them to the community in the future? Yes _____ NO_____ Don't

Know _____X_____

Winston-Salem Fire Department Unattended Cooking Fire Survey

1. What is your name and title? Kevin Pettigrew, Deputy Fire Marshal
 2. What is the name of your department? Greensboro Fire Department
 3. What is the population of your town or city? 268,000
 4. How many fires did your department respond to in 2011? 263 Structure Fires
Does Not Include Any Other Types Fires
 5. How many fires were kitchen fires? 86 (FY 10/11)
 6. How many were caused by unattended cooking? All Were Cooking Related
 7. How many fatalities were due to Kitchen fires in 2011?
Civilian 1 Fire Department Employees 0
 8. How Many Injuries were due to Kitchen fires in 2011?
Civilian 18 Fire Department Employees 0
 9. What income groups do you most often see kitchens fire occurrences?
A) 0 to \$22,000 B) \$22,000 to \$30,000 C) \$30,000 to \$50,000 D) \$50,000 to \$75,000
E) 75,000 to 100,000 F) Over \$100,000 G) Don't Know X
- (We do not track this information in FH, although we respond to all socio-economic households, I would guess income Groups A, B. and C to be the most since they are less likely to eat out.)*
10. Does your department have a "stove top" kitchen fire protection system program?
Yes No X Don't Know
 11. Do residents in your community utilize a stove top suppression unit that that attaches magnetically under the vent hood over a stovetop?
(One complex uses them – they are supplied and installed by the maintenance personnel – we are not involved in the program.

12. Does your department feel that the units have reduced the number of kitchen fires?

Yes____ No____ Don't Know ____ X_____

(Not reduced the number of fires but certainly has reduced the amount of damage and potential injuries. Only public education and personal responsibility will reduce the number of fires.)

13. Does your department feel that the units have reduced the amount of potential damage due to the unit suppressing fires?

Yes X_____ No _____ Don't Know _____

14. Does your department install the units?

Yes _____ No X_____ Don't Know _____

15. Are the units installed in new construction?

Yes _____ No X_____ Don't Know _____

If your community does not use stove top fire suppression systems, does your department plan to introduce them to the community in the future? Yes ____ NO____ Don't Know _____

(We have researched the different types on the market and believe they serve a purpose. We have done PSAs and recommended them during home safety visits and other public education efforts. Smoke detectors are still the best defense against fire injuries and deaths.)

Winston-Salem Fire Department Unattended Cooking Fire Survey

1. What is your name and title? Paul Roberts, Fire Systems Technology Manager
2. What is the name of your department? Raleigh Fire Department
3. What is the population of your town or city? 403,982 (April 2010 Census Count)
4. How many fires did your department respond to in 2011? 1,420
5. How many fires were kitchen fires? 188
6. How many were caused by unattended cooking? Unknown
7. How many fatalities were due to Kitchen fires in 2011?
 Civilian 0 Fire Department Employees 0
8. How Many Injuries were due to Kitchen fires in 2011?
 Civilian 0 Fire Department Employees 0
9. What income groups do you most often see kitchens fire occurrences?
 A) 0 to \$22,000 B) \$22,000 to \$30,000 C) \$30,000 to \$50,000 D) \$50,000 to \$75,000
 E) 75,000 to 100,000 F) Over \$100,000 G) Don't Know X
10. Does your department have a "stove top" kitchen fire protection system program?
 Yes _____ No X Don't Know _____
11. Do residents in your community utilize a stove top suppression unit that that attaches magnetically under the vent hood over a stovetop?
12. Does your department feel that the units have reduced the number of kitchen fires?
 Yes _____ No _____ Don't Know X
13. Does your department feel that the units have reduced the amount of potential damage due to the unit suppressing fires?

Yes _____ No _____ Don't Know _____ X _____

14. Does your department install the units?

Yes _____ No X _____ Don't Know _____

15. Are the units installed in new construction?

Yes _____ No X _____ Don't Know _____

If your community does not use stove top fire suppression systems, does your department plan to introduce them to the community in the future? Yes X _____ NO _____ Don't Know _____

Winston-Salem Fire Department Unattended Cooking Fire Survey

1. What is your name and title? Robbie Pate, Interim Fire Marshal
2. What is the name of your department? Rocky Mount Fire Department
3. What is the population of your town or city? 55,477
4. How many fires did your department respond to in 2011? 411
5. How many fires were kitchen fires? 75
6. How many were caused by unattended cooking? 57
7. How many fatalities were due to Kitchen fires in 2011?
 Civilian 2 Fire Department Employees 0
8. How Many Injuries were due to Kitchen fires in 2011?
 Civilian 5 Fire Department Employees 6
9. What income groups do you most often see kitchens fire occurrences?
 A) 0 to \$22,000 B) \$22,000 to \$30,000 C) \$30,000 to \$50,000 D) \$50,000 to \$75,000
 E) 75,000 to 100,000 F) Over \$100,000 G) Don't Know X
10. Does your department have a "stove top" kitchen fire protection system program?
 Yes X No Don't Know
11. Do residents in your community utilize a stove top suppression unit that that attaches magnetically under the vent hood over a stovetop? Some Do
12. Does your department feel that the units have reduced the number of kitchen fires?
 Yes X No Don't Know

13. Does your department feel that the units have reduced the amount of potential damage due to the unit suppressing fires?

Yes X No Don't Know

14. Does your department install the units?

Yes X No Don't Know

15. Are the units installed in new construction?

Yes No X Don't Know

If your community does not use stove top fire suppression systems, does your department plan to introduce them to the community in the future? Yes NO Don't Know

Winston-Salem Fire Department Unattended Cooking Fire Survey

1. What is your name and title? Jody W. Morton, Interim Assist. Fire Marshal
2. What is the name of your department? Durham Fire Department
3. What is the population of your town or city? 228,330
4. How many fires did your department respond to in 2011? _____
5. How many fires were kitchen fires? We do not specifically Track Kitchen Fires
6. How many were caused by unattended cooking? We do not specifically Track Kitchen Fires
7. How many fatalities were due to Kitchen fires in 2011?
 Civilian 0 Fire Department Employees 0
8. How Many Injuries were due to Kitchen fires in 2011?
 Civilian 0 Fire Department Employees 0
9. What income groups do you most often see kitchens fire occurrences?
 A) 0 to \$22,000 B) \$22,000 to \$30,000 C) \$30,000 to \$50,000 D) \$50,000 to \$75,000
 E) 75,000 to 100,000 F) Over \$100,000 G) Don't Know X
10. Does your department have a "stove top" kitchen fire protection system program?
 Yes _____ No X Don't Know _____
11. Do residents in your community utilize a stove top suppression unit that that attaches magnetically under the vent hood over a stovetop? No
12. Does your department feel that the units have reduced the number of kitchen fires?
 Yes _____ No _____ Don't Know X
13. Does your department feel that the units have reduced the amount of potential damage due to the unit suppressing fires?

Yes _____ No _____ Don't Know _____ *We do not use these units.*

14. Does your department install the units?

Yes _____ No _____ Don't Know _____

15. Are the units installed in new construction?

Yes _____ No X Don't Know _____

If your community does not use stove top fire suppression systems, does your department plan to introduce them to the community in the future? Yes _____ NO X Don't Know _____

Winston-Salem Fire Department Unattended Cooking Fire Survey

1. What is your name and title? Ronald G. Lewis, Battalion Chief
2. What is the name of your department? Fayetteville Fire Department
3. What is the population of your town or city? 200,564
4. How many fires did your department respond to in 2011? 1,136
5. How many fires were kitchen fires? 109
6. How many were caused by unattended cooking? Unknown
7. How many fatalities were due to Kitchen fires in 2011?
 Civilian 0 Fire Department Employees 0
8. How Many Injuries were due to Kitchen fires in 2011?
 Civilian 4 Fire Department Employees 0
9. What income groups do you most often see kitchens fire occurrences?
 A) 0 to \$22,000 B) \$22,000 to \$30,000 C) \$30,000 to \$50,000 D) \$50,000 to \$75,000
 E) 75,000 to 100,000 F) Over \$100,000 G) Don't Know X
10. Does your department have a "stove top" kitchen fire protection system program?
 Yes X No _____ Don't Know _____
11. Do residents in your community utilize a stove top suppression unit that that attaches magnetically under the vent hood over a stovetop?
Yes, Several Low Income Housing Developments
12. Does your department feel that the units have reduced the number of kitchen fires?
 Yes X No _____ Don't Know _____

13. Does your department feel that the units have reduced the amount of potential damage due to the unit suppressing fires?

Yes X No Don't Know

14. Does your department install the units?

Yes No X Don't Know

15. Are the units installed in new construction?

Yes No X Don't Know

If your community does not use stove top fire suppression systems, does your department plan to introduce them to the community in the future? Yes X NO Don't Know

Winston-Salem Fire Department Unattended Cooking Fire Survey

1. What is your name and title? Captain Denita Lynch, Comm. Relations/PIO
2. What is the name of your department? High Point Fire Department
3. What is the population of your town or city? 107,157
4. How many fires did your department respond to in 2011? 11,131
5. How many fires were kitchen fires? 154
6. How many were caused by unattended cooking? 113
7. How many fatalities were due to Kitchen fires in 2011?
 Civilian 0 Fire Department Employees 0
8. How Many Injuries were due to Kitchen fires in 2011?
 Civilian 5 Fire Department Employees 0
9. What income groups do you most often see kitchens fire occurrences?
 A) 0 to \$22,000 B) \$22,000 to \$30,000 C) \$30,000 to \$50,000 D) \$50,000 to \$75,000
 E) 75,000 to 100,000 F) Over \$100,000 G) Don't Know X
10. Does your department have a "stove top" kitchen fire protection system program?
 Yes _____ No X Don't Know _____
11. Do residents in your community utilize a stove top suppression unit that that attaches magnetically under the vent hood over a stovetop?
(Yes, we do have some apartment complexes and housing authority properties that use this Product)
12. Does your department feel that the units have reduced the number of kitchen fires?
 Yes _____ No _____ Don't Know X

13. Does your department feel that the units have reduced the amount of potential damage due to the unit suppressing fires?

Yes _____ No _____ Don't Know _____ X _____

14. Does your department install the units?

Yes X No _____ Don't Know _____

15. Are the units installed in new construction?

Yes _____ No ____ Don't Know X _____

If your community does not use stove top fire suppression systems, does your department plan to introduce them to the community in the future? Yes ____ N

Winston-Salem Fire Department Unattended Cooking Fire Survey Results

Department	Total fires	Kitchen fires	Unattended	Stove top program
Atlanta	2,149	313	19	no
Cary	218	16	6	no
Charlotte	2,219	361	107	no
Durham	No data		Don't know	
Fayetteville	1,136	109	Don't know	yes
Greensboro	263	86	86	no
High Point	1,113	154	113	no
Raleigh	1,420	118	Don't know	no
Rocky Mount	411	75	57	yes
Wilmington	556	73	6	no

Appendix B

Survey of City Officials on Supporting a Stove top Fire Suppression Program

The department is interested in starting a stove top fires suppressor program in the city. The program would be set up to install stove top fire suppression equipment into target occupancies in the city to prevent or reduce the damage and potential life loss caused by unattended cooking.

1. What is your name and your position with the City of Winston-Salem?
2. Since unattended cooking is the leading cause of fires in our city, do you think that our city residents would benefit from this type program?
3. What funding sources are available for new fire prevention initiatives in Winston-Salem?
4. Is there any funding available for a fire prevention initiative that would support installing stove top devices in target housing units?
5. If the department received a grant that required matching, would your department or the city match funding?
6. What other departments or community organizations should the department partner with in this type project?
7. Would the city or your department support a local ordinance that would require these devices to be installed in new or existing construction?
8. Do you have any recommendation for developing this type program?
9. Do you mind me using your feedback in my report?

Survey of City Officials on Supporting a Stove top Fire Suppression Program

The department is interested in starting a stove top fires suppressor program in the city. The program would be set up to install stove top fire suppression equipment into target occupancies in the city to prevent or reduce the damage and potential life loss caused by unattended cooking.

(August 31, 2012 at 3:00 pm)

1. What is your name and your position with the City of Winston-Salem? I am Derwick Paige and I am the Deputy City Manager.
2. Since unattended cooking is the leading cause of fires in our city, do you think that our city residents would benefit from this type program? Management is always interested in programs that provide a direct benefit to our citizens, especially one that would reduce fire damage and the life loss, and the workload of our firefighters.
3. What funding sources are available for new fire prevention initiatives in Winston-Salem? The General fund is the main source of funding. However, it is limited since it finances the main operating funds for city departments.
4. Is there any funding available for a fire prevention initiative that would support installing stove top devices in target housing units? We are still trying to reduce the budget, so general fund funds to support placing the systems in private residents or multi-family housing would be tough now. The best alternative is to utilize Community Block Development Grant (CBDG) funds that support projects for low income housing programs.
5. If the department received a grant that required matching, would your department or the city match funding? We would consider matching; however it is not automatic

- and would have to be approved by the Budget Office, the City Manager, and even Council depending on the amount of matching needed.
6. What other departments or community organizations should the department partner with in this type project? I would recommend talking with Ritchey Brooks in the Housing Division. He is quite familiar with the CBDG and may be able to work with Fire on this type program.
 7. Would the city or your department support a local ordinance that would require these devices to be installed in new or existing construction? The request would be considered just like any other request brought before the Manager and Council for new policies in the city.
 8. Do you have any recommendation for developing this type program? None other than keep us informed about your progress.
 9. Do you mind me using your feedback in my report? No

Survey of City Officials on Supporting a Stove top Fire Suppression Program

The department is interested in starting a stove top fires suppressor program in the city. The program would be set up to install stove top fire suppression equipment into target occupancies in the city to prevent or reduce the damage and potential life loss caused by unattended cooking.

(August 31, 2012 at 4:00 pm.)

1. What is your name and your position with the City of Winston-Salem? I am Ritchey Brooks and I am the City Housing Director. The department is now called
2. Since unattended cooking is the leading cause of fires in our city, do you think that our city residents would benefit from this type program? Yes I do. I remember one of our remodel projects a few years ago where an elderly resident was killed when her clothes caught on fire while she was cooking. This type of extinguishing system might have saved her life and reduced the damage to the property.
3. What funding sources are available for new fire prevention initiatives in Winston-Salem? The City receives funding for low income and special needs families that may support installing these devices. It would be a great device to include as part of the upgrade and requirements for the homes the city invests in using the CBDG funds.
4. Is there any funding available for a fire prevention initiative that would support installing stove top devices in target housing units? Budget would be better suited to answer that question. However, I am confident that we could work together in coming up with a way to include the devices in our current program as long as we continue to receive Community Block Development Grant monies.

5. If the department received a grant that required matching, would your department or the city match funding? We don't have matching grant money budgeted in our department. That would be a Budget Office question.
6. What other departments or community organizations should the department partner with in this type project? I could see working with Human Relations, Hispanic community groups and using K-pasa as a networking organization. The Housing Authority would be a prime candidate for this type of program.
7. Would the city or your department support a local ordinance that would require these devices to be installed in new or existing construction? Yes our department would. We will work with you in developing the program. I will assign our department person to work with your designee on this program. It will benefit both of our department objectives. Let's put them together to begin developing the program.
8. Do you have any recommendation for developing this type program? Let's go ahead and get started working on the process.
9. Do you mind me using your feedback in my report? No

Survey of City Officials on Supporting a Stove top Fire Suppression Program

The department is interested in starting a stove top fires suppressor program in the city. The program would be set up to install stove top fire suppression equipment into target occupancies in the city to prevent or reduce the damage and potential life loss caused by unattended cooking.

(August 31, 2012 at 4:00 pm.)

1. What is your name and your position with the City of Winston-Salem? I am Scott Tesh and I work for the Budget Office.
2. Since unattended cooking is the leading cause of fires in our city, do you think that our city residents would benefit from this type program? Yes. I have looked at the data in the bench marking and saw that cooking fires occur a lot in cities including our city.
3. What funding sources are available for new fire prevention initiatives in Winston-Salem? There is no funding budgeted in the present budget's general fund for this type of activity.
4. Is there any funding available for a fire prevention initiative that would support installing stove top devices in target housing units? I will meet with the budget director to see if there are funding opportunities available for special projects.
5. If the department received a grant that required matching, would your department or the city match funding? There may be monies available for matching. It depends on the project and availability at the time of the request. Manager and council approval would be necessary in most cases, especially since the economy has us reviewing every dollar spent.

6. What other departments or community organizations should the department partner with in this type project? I would have to do a little research to answer that question. I'll let you know. You might check with the City Secretary to see if there are records that may reveal opportunities.
7. Would the city or your department support a local ordinance that would require these devices to be installed in new or existing construction? The Budget office would support you in any way possible.
8. Do you have any recommendation for developing this type program? Since funding is a critical issue these days, let's make sure that you keep us informed as you move through the process. Let us help you with the project.
9. Do you mind me using your feedback in my report? No

Survey of City Officials on Supporting a Stove top Fire Suppression Program

The department is interested in starting a stove top fires suppressor program in the city. The program would be set up to install stove top fire suppression equipment into target occupancies in the city to prevent or reduce the damage and potential life loss caused by unattended cooking. (April through 2012)

1. What is your name and your position with the City of Winston-Salem? I am Norman Mitchell, Deputy Fire Marshall with the Winston-Salem Fire Department.
2. Since unattended cooking is the leading cause of fires in our city, do you think that our city residents would benefit from this type program? I know that they would. Fire Prevention has been working on obtaining a grant to get some stove stop suppressing devices installed in the apartments in our city. They would reduce damage and the size of fires that our firefighters have to extinguish at cooking fire incidents. I have had some experience with these and the canister type would really be easy to install and are a real inexpensive for what they do.
3. What funding sources are available for new fire prevention initiatives in Winston-Salem? We have not had any success with city funding and we are seeking grant funds to support a program.
4. Is there any funding available for a fire prevention initiative that would support installing stove top devices in target housing units? We don't have any at this time. We hope the grant will come through for us.
5. If the department received a grant that required matching, would your department or the city match funding? I cannot answer that but I would hope that the City would match this grant and see it as a possibility since grants have been matched in the past.

6. What other departments or community organizations should the department partner with in this type project? We would work with the Housing Authority, neighborhood associations, City Housing, and the Chamber of Commerce. These come to mind.
7. Would the city or your department support a local ordinance that would require these devices to be installed in new or existing construction? Fire prevention will support and work on developing the content and language for an ordinance. There are several examples to follow and we will talk with those cities to get an ideal of what they did.
8. Do you have any recommendation for developing this type program? We should work with the Housing Authority and other organizations in the city. We can also see what other departments did when they started their programs.
9. Do you mind me using your feedback in my report? No

Appendix C

Kitchen Fire data for Winston-Salem

	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>Jan-Aug 2012</u>	<u>Total</u>
Building Fires	324	301	317	304	175	
Kitchen Fires	139	145	159	154	99	696
Unattended Cooking Fires	51	54	77	55	44	
Total Damages	\$456,985	\$441,370	\$656,830	\$519,400	\$828,025	\$2,902,610
Civilian Injuries	18	9	9	11	4	51
Civilian Deaths	0	0	0	0	0	0
Firefighter Injuries	1	0	0	0	0	1
Displacements	34	29	55	53	85	256

Appendix D

Interview Questions for Stove Top Fire Suppressor Vendors/Manufacturers

1. What is your name and who do you represent?
2. Would you describe your automatic extinguishing system or device?
3. How long has it been in existence?
4. Who installs it and how is it installed?
5. How much does it cost?
6. How effective is the device?
7. What are examples of users of the device?
8. Does it reduce fire loss? Insurance premiums? Insurance claims?
9. Do you mind me using your feedback in my report?

Interview of Stove Top Fire suppressor Vendors/Manufacturers (Stovetop FireStop)

1. What is your name and who do you represent? I am Ray Harris with Stovetop FireStop, special marketing.
2. Would you describe your automatic extinguishing system or device? The stove top device is a canister that attaches under the vent hood above the stove top. One canister for two burners. It uses a powder type chemical that drops on the stove when activated by fire.
3. How long has it been in existence? The devices have been around for 40 years.
4. Who installs it and how is it installed? They are simple to install. They are magnetic and anyone can simply lift them in place and they attach to the hood surface magnetically.
5. How much does it cost? The cost 50 dollars per stove and last around 5 years. You simply replace them after the expiration date. They can be purchased at Lowes, HQ,
6. How effective is the device? In his experience, the Stovetop Firestop extinguisher system has always extinguished a stove top fire.
7. What are examples of users of the device? They are often purchased by apartment complexes, military bases, and home owners. The city of Shreveport in Louisiana requires the units in housing by ordinance.
8. Does it reduce fire loss? Insurance premiums? Insurance claims? The devices extinguish the fire and stop the spread, thus significantly reducing damages and insurance claims.
9. Do you mind me using your feedback in my report? No. I will also send you an information packet about the product.

Interview of Stove Top Fire suppressor Vendors/Manufacturers (SmartX)

1. What is your name and who do you represent? Conrad Mekulec with SmartX. He is the manufacturer of the SmartX system and Also ABC dry chemicals, and other protection systems used by the government.
2. Would you describe your automatic extinguishing system or device? It is a self-contained capsule like hood system that can be installed or fitted to hoods over the stove. It is activated by fire and uses an environment friendly chemical liquid to extinguish the fire.
3. How long has it been in existence? It has been in use over 30 years.
4. Who installs it and how is it installed? They can be installed by professionals for around 10 to 15 dollars and even by do-it-yourself owners.
5. How much does it cost? The price are inexpensive compared to other systems and vary depending on the type of style purchased.
6. How effective is the device? Systems have successfully extinguished every fire based on his experience.
7. What are examples of users of the device? The systems are in Buffalo, Augusta, military bases in the United States, Germany, and Korea. He also noted that HUD will support and pay for these devices. They have a priority for home systems projects.
8. Does it reduce fire loss? Insurance premiums? Insurance claims? The systems stop the fire before damage and basically a 5 dollar cleanup.
9. Do you mind me using your feedback in my report? No. I'll send you my information when you e-mail me at the address you see on the web site.

Appendix E

Stove Top Suppressor Examples

(SmartX)

ABOUT SMARTX

THE **SMARTX AX-300 SYSTEM** is more than an extinguisher, more than an alarm.

With **SMARTX AX-300 SYSTEM** installed, you do not have to worry about finding and struggling with an extinguisher to fight a fire.

The patented **SMARTX AX-300 SYSTEM** works automatically. INSTANTLY! Right at the heart of the flames. Unlike all other fire extinguishers, the **SMARTX AX-300 SYSTEM** DETECTS THE FIRE AND EXTINGUISHES IT, without your assistance!



PROTECTION WHERE IT'S NEEDED MOST - OUT OF SIGHT:

The patented, U. L. LISTED, self-contained **SMARTX AX-300 SYSTEM** is designed to work where it counts the most, in the hood - directly over your stove-top. There is no external plumbing, piping or reservoir to take up adjacent cabinet space. The **SMARTX AX-300 SYSTEM** is designed for years of service with very little maintenance required. The **SMARTX AX-300 SYSTEM** is backed by a one year limited parts warranty and a twelve year U.L. Service Life on the cylinder and agent, from the date of manufacture.

THE PERFECT SYSTEM FOR EVERY SITUATION:

The **SMARTX AX-300 SYSTEM** is a must for new-builds and remodeling, or anytime, because it's so quick and easy to install by the average homeowner. **Efficient.....** because it doesn't take up your valuable cabinet or storage space.

PROTECTION PROVIDED BY THE SMARTX AX-300 IS IDEAL FOR:

1. Disabled people
2. Condos and condo meeting rooms
3. People with differing abilities
4. Military base housing
5. Homes / apartments
6. Hotel and motel efficiencies
7. Church and meeting hall areas
8. College dorms with stoves
9. Retirement communities
10. Fire and police department dorms
11. Mobile homes
12. Water craft

THE FACTS

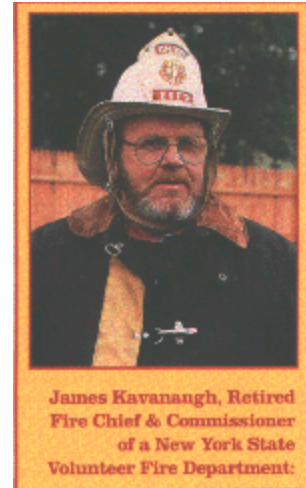
LOWEST COST FOR BEST PROTECTION:

Even though the patented, U.L. Listed, **SMARTX AX-300 SYSTEM** is the most advanced automatic under-hood fire suppression system you can own, it costs considerably less than the competition for priceless protection.

You may even be eligible for insurance premium reduction that will help the

SMARTX AX-300 SYSTEM pay for itself.

INSURANCE COMPANIES, FINANCIAL INSTITUTIONS AND GOVERNMENTS SAVE DOLLARS



"I've seen far too many tragedies that could have been prevented if only people were properly prepared.

The **SMARTX SYSTEM** is extremely effective, A great product."

Fire and Health Insurance Company actuaries and financial institutions stand up and take notice of these great insurance loss reductions. They will drastically reduce the operating costs of local fire and police departments. Federal, State, and County budgets will also be substantially cut because of less activity.

PROVEN SYSTEM:

The **SMARTX AX-300 SYSTEM** utilizes a number of firefighting innovations originally brought to you by POWER - PAK. This company and its founders have advanced Underwriters Laboratories Fire-fighting standards more times than any other fire extinguishing company in history. Their contributions include the first universal valve for all types of fire-fighting chemicals; first lightweight portable ABC fire extinguisher and first portable automatic fire extinguisher. POWER PAK protects the U.S. Capitol, Pentagon, many other government buildings, aircraft, major American industries, hospitals, hotels, museums and art galleries, including the Louvre. The patented, active ingredient "Acu-Lite" was instrumental in the "Desert Storm" campaign.

STOPS STOVE-TOP FIRES INSTANTLY, AUTOMATICALLY:

1. Detects fire, puts it out in less than two seconds, and warns you immediately
2. Euro-appliance styling is attractive in any kitchen
3. U.L. Listed for quick, easy, self-installation
4. Takes up no valuable cabinet space

5. One year limited parts warranty
6. Twelve year U.L. Service Life on cylinder and agent
7. Features "Acu-Lite" - the only patented fire extinguishing agent that is non- toxic, non-corrosive, environmentally friendly and meets all the standards of Underwriters Laboratories Inc. and the National Fire Protection Association
8. Number one in every category tested for military family housing
9. Lowest cost

StoveTop FireStop

StoveTop FireStop Automatic fire Suppressor
attaches magnetically under the vent hood

Residential Range Top Suppression



Which One Is Right for You?

StoveTop Fire Stop automatic fire suppressors protect your kitchen from cooking fires, the leading cause of residential fires with most kitchen appliances. Residents won't fumble with fire extinguishers or get dangerously close to a stove that won't spread out of control. Customers report a 99% average reduction rate in fire claims.

Inexpensive, easily installed, and a wise investment: Stovetop Fire Stop is what every residence needs. Follow the FireStop in action, see how it works, and find out which one is right for you.



**For stoves with microwaves
or cabinetry overhead**



**For stoves with traditional
vent hoods overhead**

CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

Signed: Antony Farmer (August 31, 2012)